

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Threatened Status Proposed for *Geocarpon Minimum*

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: The Service proposes to determine a plant, *Geocarpon minimum*, to be a threatened species under the authority contained in the Endangered Species Act (Act) of 1973, as amended. *Geocarpon minimum* is only known from three sites in southeastern Arkansas (three counties) and thirteen sites in southwestern Missouri (six counties). However, of these 16 sites, only four Missouri sites and one Arkansas site contain vigorous populations. This species is threatened by its limited distribution and by habitat destruction or modification from grazing by cattle, off-road vehicle (ORV) use, and forestry practices. This proposed rule, if made final, will extend the Act's protection to *Geocarpon minimum*. The Service seeks data and comments from the public on this proposed rule.

DATES: Comments from all interested parties must be received by June 9, 1986. Public hearing requests must be received by May 27, 1986.

ADDRESSES: Comments and materials concerning this proposal should be sent to the Endangered Species Field Station, U.S. Fish and Wildlife Service, Jackson Mall Office Center, Suite 316, 300 Woodrow Wilson Avenue, Jackson, Mississippi 39213. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Mr. Dennis B. Jordan (see "ADDRESSES" section) at 601/960-4900 or FTS 490-4900.

SUPPLEMENTARY INFORMATION:**Background**

Geocarpon minimim is a small, succulent annual ranging from 1 to 4 centimeters (0.4-1.6 inches) in height. The stems, which may be simple or branched near the base, extend from a slender tap root. Leaves are opposite, sessile, joined at base, 3 to 4 centimeters (1.2-1.6 inches) long, and narrowly oblong in shape. The flowers, which are inconspicuous in the leaf axils, are apetalous, and have a greenish-red calyx. The fruit, a capsule, dehisces into three parts at maturity, releasing numerous seeds measuring 0.5 millimeters (0.02 inch) long. Young plants are dull gray and turn reddish-purple at maturity. The species is

ephemeral, usually completing its life cycle within a four week period (Morgan 1980, Karl 1983, Tucker 1983).

Geocarpon minimum, a monotypic genus, was first collected in 1913 by E.J. Palmer in Jasper County, Missouri. MacKenzie (1914) described this new taxon and placed it in the family Aizoaceae. Palmer and Steyermark (1950) later transferred the genus to the Caryophyllaceae family based on the following characters: staminodal rudiments, apetalous flowers, lack of stipules, gamophyllous calyx, 5 perigynous stamens, 1-celled ovary, and free-central placentation. Chemotaxonomic studies on *Geocarpon* by Bogle *et al.* (1971) revealed the presence of anthocyanins, which provided further support to its placement in the Caryophyllaceae family.

Geocarpon was known only from the type locality until 1957 when it was discovered in St. Clair County, Missouri, by Steyermark (1958). The following year, three additional populations were found: two in Missouri (Steyermark *et al.* 1959) and one in Arkansas (Moore 1958). Since that time, extensive field surveys of suitable habitat by Steyermark *et al.* (1959), Retting (1983), Tucker (1983), S. Orzell (Arkansas Natural Heritage Commission, *pers. comm.*, 1985) and S. Morgan (Missouri Department of Conservation, *pers. comm.*, 1985) have resulted in the location of only 13 populations in Missouri and three in Arkansas.

In Missouri, *Geocarpon* grows on moist, sandy soils on exposed sandstone outcrops which are primarily of the Channel sands formation (Morgan 1980). Arkansas sites are characterized as sandy-clay prairies occurring in otherwise savanna type areas. In these areas, *Geocarpon* occurs on bare mineral soils of the Lefe Series (high in sodium and magnesium) which may represent relict Pleistocene Lake beds (Tucker 1983, Kral 1983). Species diversity is low in these communities. Common associates include *Houstonia minima*, *Nothoscordum bivalve*, *Plantago hybrida*, *Plantago elongata*, *Krigia occidentalis*, *Krigia virginica*, and *Oenothera linifolia* (Morgan 1980, Tucker 1983, Kral 1983). Sites in Arkansas are also characterized by prominent blue-green alga colonies (Tucker 1983).

Geocarpon has not been observed at the type locality since 1949 and is believed extirpated from this site (Morgan, pers. comm., 1985). Currently, populations are known at 13 sites in Missouri; including five in Dade County, two each in Polk, St. Clair, and Cedar Counties, and one each in Lawrence and Greene Counties. However, only four of these 13 sites support vigorous populations (Morgan, pers. comm., 1985). Three populations of *Geocarpon* are known in Arkansas, a large one at Warren Prairie in parts of Bradley and Drew Counties (Warren Prairie), and two small depauperate populations in Cleveland County (Kingsley Prairie). The Warren Prairie site contains the largest population of *Geocarpon*, with plants occurring locally in parts of five contiguous sections (Tucker 1983). Population structure consists of solitary individuals or small groups within these communities. Morgan (1980) reports that in Missouri the colonies range in size from 1 to 6 square meters (1.2-7.2 square yards) while Tucker (1983) states the largest colonies do not exceed 1 square meter in Arkansas. The majority of the sites are on privately-owned lands; four sites are located on public lands. Those on public land include two areas administered by the U.S. Army Corps of Engineers, one by the State of Missouri (Missouri Department of Conservation) and a portion of one site by the State of Arkansas (Arkansas Natural Heritage Commission). Many of these sites continue to be damaged by grazing and off-road vehicles (ORVs), thereby threatening the continued existence of *Geocarpon*.

Federal Government actions on this species began with Section 12 of the Endangered Species Act of 1973 (Act), which directed the Secretary of the

Smithsonian Institution to prepare a report on those plants considered to be endangered, threatened, or extinct. This report, designated as House Document No. 94-51, was presented to Congress on January 9, 1975. On July 1, 1975, the Service published a notice in the *Federal Register* (40 FR 27823) of its acceptance of the Smithsonian Institution report as a petition within the context of section 4(c)(2) of the Act [petition acceptance is now governed by section 4(b)(3)(A) of the Act], and of its intention thereby to review the status of the plant taxa named therein. On June 18, 1976, the Service published a proposed rule in the *Federal Register* (41 FR 24523) to determine approximately 1,700 vascular plant species to be endangered species pursuant to Section 4 of the Act. The list of 1,700 plant taxa was assembled on the basis of comments and data received by the Smithsonian Institution and the Service in response to House Document No. 94-51 and the July 1, 1975, *Federal Register* publication. *Geocarpon minimum* was included in the Smithsonian petition and the June 18, 1976, proposal, as amended. General comments received in relation to the 1976 proposal were summarized in the *Federal Register* on April 26, 1978 (43 FR 17909).

The Endangered Species Act Amendments of 1978 required that all proposals over 2 years old be withdrawn. On December 10, 1979, the Service published a notice (44 FR 70796) withdrawing the June 18, 1976, proposal along with four other proposals that had expired. On December 15, 1980, the Service published a revised notice of review for native plants in the *Federal Register* (45 FR 82480); *Geocarpon minimum* was included in that notice as a category-1 species. *Geocarpon minimum* was maintained in category 1 in the Service's updated plant notice of September 27, 1985 (50 FR 39526). Category 1 comprises taxa for which the Service presently has substantial biological information to support their being proposed to be listed as endangered or threatened species.

Section 4(b)(3) of the Endangered Species Act, as amended in 1982, requires the Secretary to make certain findings on pending petitions within 12 months of their receipt. Section 2(b)(1) of the 1982 Amendments further requires that all petitions pending on October 13, 1982, be treated as having been newly submitted on that date. This was the case for *Geocarpon minimum* because of the acceptance of the 1975 Smithsonian report as a petition. On October 13, 1983, October 12, 1984, and October 11, 1985, the Service found that

the petitioned listing of *Geocarpon minimum* was warranted, and that although other pending proposals had precluded its proposal, expeditious progress was being made to add species to the list. Publication of this proposal constitutes the Service's findings under section 4(b)(3)(B)(II) of the Act that the petitioned listing of *G. minimum* is warranted.

Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations promulgated to implement the listing provisions of the Act (50 CFR Part 424) set forth the procedures for adding species to the Federal lists. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1). These factors and their application to *Geocarpon minimum* Mackenzie are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* *Geocarpon minimum* is restricted to southwestern Missouri and southeastern Arkansas (see "Background" section for number of populations). The major threat to *Geocarpon* is the destruction or adverse modification of its habitat. Many of the sites in Missouri have been damaged from trampling and grazing by cattle (Morgan, pers. comm., 1985). The extirpation of the population at the type locality is perhaps attributable to such grazing pressures, as the area is now a fenced pasture. The habitat of *Geocarpon* continues to be damaged by ORVs, and this problem is amplified by the easy access to many of the sites from adjacent roads (Tucker 1983). Suitable habitat for *Geocarpon* is limited, and most such areas have been heavily disturbed. In southern Arkansas many of the areas have been adversely modified by silvicultural practices (Tucker 1983, S. Orzell, pers. comm., 1985). Populations in close proximity to roads are further threatened by future road expansions and improvements. Even though habitat is of low agricultural quality, some areas have been cultivated in the past or are presently in pasture (Kral 1983). *Geocarpon* appears to require some type of natural disturbance to maintain bare substrate for seedling establishment (Tucker 1983). Research on the biology of this species is needed before proper management plans can be developed.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Taking for these purposes poses a risk to *Geocarpon minimum* due

to the ease of access to the sites and its desirability due to its taxonomic uniqueness (*Geocarpon* is a monotypic genus; genus contains only one species).

C. *Disease or predation.* *Geocarpon* is not known to be threatened by disease or predation.

D. *The inadequacy of existing regulatory mechanisms.* *Geocarpon* is considered endangered by the Missouri Department of Conservation and the Arkansas Natural Heritage Commission; however, it is afforded legal protection only in Missouri. Missouri legislation prevents commercial exploitation of rare and endangered plants without a permit. However, the Missouri law does not provide protection against habitat loss, the major threat to *Geocarpon*. Of the four publicly owned sites, three are designated as Natural Areas (NA) and are thereby afforded protection. The Arkansas Natural Heritage Commission owns and manages the Warren Prairie NA (300 acres, 125 hectares) in Bradley County, which contains a portion of the largest known population of *Geocarpon*; however, no protection is provided for the plants and their habitat outside the NA in adjacent Drew County. The other two NAs are in Missouri: the Bona Glade NA (Dade County), owned by the U.S. Army Corps of Engineers and supporting a large, healthy population; and the Taberville Prairie NA (St. Clair County), owned and managed by the Missouri Department of Conservation, but a less suitable site with a smaller population. At these areas, collecting is prohibited except for scientific or educational purposes under permit, but these regulations are difficult to enforce. The Act would enhance the existing protection through Section 7 (interagency cooperation) and Section 9, which prohibits removal and reduction to possession from Federal lands and restricts interstate commercial activity.

E. *Other natural or manmade factors affecting its continued existence.* *Geocarpon* is vulnerable due to the small amount of available habitat, its limited range, and low numbers at many of the sites. Furthermore, the species is susceptible to inadvertent destruction because of its diminutive size, ephemeral nature, and localized distribution. As with all annuals, population size may fluctuate from year to year due to variable reproductive success. For example, *Geocarpon* does not germinate every year, a condition perhaps related to moisture availability (Morgan 1980, Tucker 1983). Successful germination from a seed bank can reestablish populations following reproductive failure; however, local extirpation is likely in areas as

populations decrease in size. *Geocarpon* is a pioneer species that tolerates little competition from other species. Overcrowding and shading by invading plants with succession pose insidious threats to this species (Tucker 1983).

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to propose this rule. Based on this evaluation, the preferred action is to list *Geocarpon minimum* as threatened. Threatened status seems appropriate since two populations and a portion of a third population are located in designated Natural Areas and are thus protected. Critical habitat is not being determined for reasons discussed in the following section.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that to the maximum extent prudent and determinable, the Secretary designate any habitat of a species which is considered to be critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for *Geocarpon minimum* at this time. The involved State agencies and the U.S. Army Corps of Engineers are aware of the locations for this species. Publication of exact locations of *Geocarpon* would increase public interest and possibly lead to additional threats for the species from collecting and vandalism. The sites where *Geocarpon* occurs are easily accessible. *Geocarpon* is a monotypic genus and may be desired for plant collections or for study. No benefit can be identified through critical habitat designation that would outweigh these potential threats. Therefore, it would not be prudent or beneficial to determine critical habitat for *Geocarpon minimum* at this time.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the

prohibitions against collection are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR Part 402, and are now under revision (see proposal at 48 FR 29990, June 29, 1983). Section 7(a)(4) requires Federal agencies to confer informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with the Service.

Two populations of *Geocarpon minimum* occur on lands under jurisdiction of the U.S. Army Corps of Engineers (Dade County, Missouri); however, one site is designated a Missouri Natural Area and thus is protected. Future activities involving development near the other site could affect *Geocarpon* but no such activities are known at this time. Currently, no activities to be authorized, funded, or carried out by Federal agencies are known to exist that would affect *Geocarpon*.

The Act and its implementing regulations found at 50 CFR 17.71 and 17.72 set forth a series of general trade prohibitions and exceptions that apply to all threatened plant species. With respect to *Geocarpon minimum*, all trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.71, would apply. These prohibitions, in part, would make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, or sell or offer for sale this species in interstate or foreign commerce. Seeds from cultivated specimens of threatened plant species are exempt from these prohibitions provided that a statement of "cultivated origin" appears on their containers. Certain exceptions can apply to agents of the Service and State conservation agencies. The Act and 50

CFR 17.72 also provide for the issuance of permits to carry out otherwise prohibited activities involving threatened species under certain circumstances. It is anticipated that few trade permits would be sought or issued since *Geocarpon minimum* is not common in cultivation or in the wild.

Section 9(a)(2)(B) of the Act, as amended in 1982, prohibits the removal and reduction to possession of endangered plant species from areas under Federal jurisdiction. This protection applies to *Geocarpon minimum* by regulation. Permits for exceptions to this prohibition are available through regulations published September 30, 1985 (50 FR 39681; to be codified at 50 CFR 17.62). It is anticipated that few collecting permits will be requested for taking *Geocarpon minimum*. Requests for copies of the regulations on plants and inquiries regarding them may be addressed to the Federal Wildlife Permit Office, U.S. Fish and Wildlife Service, Washington, DC 20240 (703/235-1903).

Public Comments Solicited

The Service intends that any final rule adopted will be accurate and as effective as possible in the conservation of endangered or threatened species. Therefore, any comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning any aspect of this proposed rule are hereby solicited. Comments particularly are sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to *Geocarpon minimum*;

(2) The location of any additional populations of *Geocarpon minimum* and the reasons why any habitat should or should not be determined to be critical habitat as provided by Section 4 of the Act;

(3) Additional information concerning the range and distribution of this species; and

(4) Current or planned activities in the subject area and their possible impacts on *Geocarpon minimum*.

Final promulgation of the regulation on *Geocarpon minimum* will take into consideration the comments and any additional information received by the Service, and such communications may lead to adoption of a final regulation that differs from this proposal.

The Endangered Species Act provides for a public hearing on this proposal, if requested. Requests must be filed within 45 days of the date of the proposal. Such requests must be made in writing and addressed to Endangered Species Field Supervisor (see ADDRESSES section).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the *Federal Register* on October 25, 1983 (48 FR 49244).

Literature Cited

- Bogle, A.L., T. Swain, R.D. Thomas, and E.D. Kohn. 1971 *Geocarpon*: Aizoaceae or Caryophyllaceae? *Taxon* 20(4):473-477.
- Kral, R. 1983. A report on some rare, threatened, or endangered forest-related vascular plants of the South. USDA, Forest Service, Technical Publication R8-TP2. pp. 409-412.
- MacKenzie, K.K. 1914. A new genus from Missouri. *Torrey* 14:87-88.
- Moore, D.M. 1958. New records for the Arkansas flora. IV. *Proc. Ark. Acad. Sci.* 12:12.
- Morgan, S.W. 1980. Status report on *Geocarpon minimum* in Missouri. Missouri Department of Conservation, Jefferson City, MO. 16 pp.

Palmer, E.J., and J. Steyermark. 1950. Notes on *Geocarpon minimum* MacKenzie. *Bull. Torrey Bot. Club* 77:268-273.

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Steyermark, J., J.W. Voigt, and R.H. Mohlenbrock. 1959. Present biological status of *Geocarpon minimum* MacKenzie. *Bull. Torrey Bot. Club* 86:228-235.

Tucker, G.E. 1983. Status report on *Geocarpon minimum* MacKenzie. Provided under contract to the U.S. Fish and Wildlife Service, Southeast Region, Atlanta, Georgia. 41 pp.

Author

The primary author of this proposed rule is Ms. Cary Norquist, Endangered Species Field Station, U.S. Fish and Wildlife Service, 300 Woodrow Wilson Avenue, Suite 316, Jackson, Mississippi 39213 (601/960-4900 or FTS 490-4900).

List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

Proposed Regulation Promulgation

PART 17—[AMENDED]

Accordingly, it is hereby proposed to amend Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, as set forth below:

1. The authority citation for Part 17 continues to read as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. It is proposed to amend § 17.12(h) by adding the following, in alphabetical order under Caryophyllaceae, to the List of Endangered and Threatened Plants:

§ 17.12 Endangered and threatened plants.

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(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
CARYOPHYLLACEAE—Pink family:						
<i>Geocarpon minimum</i>	None.....	U.S.A. (AR, MO).....	T	NA	NA

Dated: March 2, 1986.

P. Daniel Smith,

Deputy Assistant Secretary for Fish and Wildlife and Parks.

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